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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,002	07/22/2003	Christof Ballweg	PD020069	3655

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EXAMINER

LAMB, CHRISTOPHER RAY

ART UNIT PAPER NUMBER

2627

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/625,002	Applicant(s) BALLWEG, CHRISTOF	
	Examiner Christopher R. Lamb	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8-9, 10/1-4, 10/6, and 10/8-9 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 10/5, 10/7, and 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/22/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, performing wobble signal detection in parallel with a plurality of reference signals having different wobble frequencies (as in claim 10) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 11 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method of detecting a wobble signal using a reference signal.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 2-4 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01.

In claim 2, the comparing step is claimed as comprising generating a sum signal and a difference signal from the input and reference signals. Generating the sum and difference is not a comparison. Clearly, then, there are other essential steps that must take place before the comparing step is finished, because as claimed, no comparison has been described.

To put it another way, the structural relationship between generating the sum and difference signal and outputting the final output signal is not clear from the claim. An essential part of the method has been omitted in between these steps.

As the claim is just an unfinished piece of a method, the applicant has failed to distinctly claim the subject matter they regard as their invention, and the claim is thus rejected.

Regarding claims 3-4 and 6, although they describe further processing of the sum and difference signal, none of them reach the actual comparison operation by which the output signal is produced. Thus they too have omitted essential steps.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki (US Patent 6,201,773).

Aoki discloses a method for detecting a wobble signal (Fig. 8 or Fig. 9), characterized in that it comprises the steps of:

comparing (Fig. 8: the signals are multiplied) an input signal comprising the wobble signal (Fig. 8: "wobble signal") with a reference signal (Fig. 8: "delayed signal"), the reference signal corresponding in phase and frequency to the desired wobble signal (since it is the wobbled signal, just delayed one bit, it corresponds in phase and frequency);

and outputting an output signal indicating the amplitude and the phase of the wobble signal (Fig. 8: "low pass filter output").

Regarding claim 8, Aoki discloses the step of calculating the reference signal (since it is output from the delay circuit, Fig. 9: 42, it is thus "calculated").

9. Claims 1, 8, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Maegawa et al. (US Patent 6,345,018).

Regarding claim 1, Maegawa discloses a method for detecting a wobble signal, characterized in that it comprises the steps of:

comparing (Fig. 2) an input signal comprising the wobble signal (Fig. 2: "wobbling signal") with a reference signal (Fig. 2: "phase-comparison signal"), the reference signal corresponding in phase and frequency to the desired wobble signal (column 7, lines 27-31);

and outputting an output signal indicating the amplitude and the phase of the wobble signal (Fig. 3E).

Regarding claim 8, Maegawa discloses the step of calculating the reference signal (column 7, lines 27-31).

Regarding claim 9, Maegawa discloses another embodiment (Fig. 9) containing all elements of claim 1 (in this embodiment the output signal "indicates" the amplitude of the wobble signal in that it indicates whether the amplitude is zero or non-zero), as well as the step of storing the reference signal in a table (column 10, lines 28-30).

10. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Ko et al (US Patent 6,671,238).

Regarding claim 1, Ko discloses a method for detecting a wobble signal, characterized in that it comprises the steps of:

comparing (Fig. 11) and input signal comprising the wobble signal (one of the two outputs of 200 in Fig. 11) with a reference signal (the other output of 200 in Fig. 11), the reference signal corresponding in phase and frequency to the desired wobble signal (it does so because the reference signal is itself the wobble signal as detected by that half of the photodiode 200); and

outputting an output signal indicating the amplitude and phase of the wobble signal (Fig. 12D, E. or F).

Regarding claim 2, Ko discloses that the comparing step comprises the step of generating a sum signal and a difference signal of the input signal and the reference signal (Fig. 11: 202 and 204).

Regarding claim 3, Ko discloses that the comparing step further comprises the step of further processing said sum signal and said difference signal (in Fig. 11, the sum signal is further processed by the envelope detector 208, and the difference signal is further processed by the band pass filter 206).

Regarding claim 6, Ko discloses that the comparing step further comprises the step of integrating said further processed sum signal and said further processed difference signal over a wobble period (the combined signals are fed into a LPF, 216, in Fig. 11; a low pass filter integrates an input signal).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 2, 3, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki in view of Yoshimura et al. (US Patent 6,100,724).

Regarding claims 2, 3, 4, and 6, Aoki discloses a method of detecting a wobble signal as discussed above in the rejection of claim 1.

Aoki's method involves comparing the wobble signal to a delayed wobble signal (apparent from Fig. 8) in order to detect a phase difference between the two signals.

Yoshimura discloses a method of comparing a signal to a delayed signal (Fig. 3 and Fig. 4) in order to detect a phase difference (column 5, lines 8-11). Yoshimura's

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method is digital rather than analog. Yoshimura discloses that analog processing is inferior to digital processing (column 2, lines 13-19).

As a part of the method, Yoshimura discloses:

(A) generating a sum signal and a difference signal of the input signal and the reference signal (Fig. 3: 22 and 26);

(B) further processing said sum signal and said difference signal (clear in Fig. 3 and Fig. 4);

(C) that the further processing comprises absolute value calculation (Yoshimura has a squaring circuit, Fig. 4: 32, but discloses that it may be replaced by an absolute value circuit to ease calculations in column 5, lines 34-36);

(D) integrating said further processed sum signal and said further processed difference signal over the period (Fig. 4: "Integrating Section": both signals have been combined together by this point but they are both a part of the signal that is integrated).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Aoki to include the method of detecting phase differences taught by Yoshimura (which necessarily includes elements A, B, C, and D).

The motivation would have been to use digital processing instead of the inferior analog processing of Aoki, as suggested by Yoshimura.

Regarding claim 6, Yoshimura does not disclose integrating said further processed sum signal and said further processed signal over the **wobble** period, because Yoshimura does not disclose wobbles. However, Yoshimura does state that the integrating section may integrate over a predetermined time (column 5, lines 21-25).

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Since Aoki's goal is to detect phase differences in a wobble period (as evidenced by, for example, Aoki Fig. 8), in Aoki as modified by Yoshimura it makes sense to integrate over the wobble period.

13. Claims 10/2-4 and 10/6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki in view of Yoshimura as applied to claims 2-4 and 6 above, and further in view of Kang et al. (U.S. Patent 5,631,893).

Aoki in view of Yoshimura disclose a method for detecting a wobble signal as discussed above.

Kang discloses an optical disc reading apparatus with multiple heads (Fig. 8) for reading different parts of the disk in parallel. Kang discloses this allows multiple users to simultaneously read from the same disc (column 1, lines 6-14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Aoki in view of Yoshimura as taught by Kang to include reading different parts of the disc in parallel. The motivation would have been to allow multiple users to simultaneously read from the disc.

Since the method of Aoki in view of Yoshimura is integral to reading from the disc, once modified as taught by Kang, Aoki in view of Yoshimura would inherently include performing the method in parallel for a plurality of reference signals having different wobble frequencies (they would be different because they are simultaneously read from different parts of the disc).

14. Claims 10/1, 10/8, 10/9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maegawa in view of Kang et al.

Maegawa discloses a method for detecting a wobble signal as discussed above in the rejections of claims 1, 8, and 9.

It would have been obvious to modify Maegawa as taught by Kang to include performing the method in parallel for a plurality of reference signals having different wobble frequencies for the same reasons it was obvious to modify Aoki as discussed in the rejection of claims 10/2-4 and 10/6.

15. Claims 10/1, 10/2, 10/3, and 10/6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ko in view of Kang.

Ko discloses a method for detecting a wobble signal as discussed above in the rejections of claims 1, 2, 3, and 6.

It would have been obvious to modify Maegawa as taught by Kang to include performing the method in parallel for a plurality of reference signals having different wobble frequencies for the same reasons it was obvious to modify Aoki as discussed in the rejection of claims 10/2-4 and 10/6.

Allowable Subject Matter

16. Claims 5, 7, 10/5, and 10/7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter:

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Regarding claim 5, the closest prior art of record, Ko, does not teach or suggest that the comparison step should further comprise the step of generating a further difference signal of said processed sum signal and said processed difference signal. These features in combination with the other elements of the claim render the claim allowable over the prior art of record.

Claims 7, 10/5, and 10/7 are dependent on claim 5.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Getreuer (US Patent 4,807,214), Shinoda et al. (US Patent 5,303,216), Maegawa (US Patent 6,888,783).

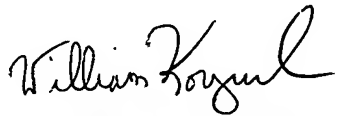
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CRL 3/28/06


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